IN THE CLAIMS

A list of the pending claims is presented below.

1. (Previously Presented) A method for configuring an IP telephone, comprising:
receiving an identifier from the IP telephone;
determining if a MAC ID for the IP telephone is valid;
if the MAC ID is determined to be valid, determining if the identifier is valid;
if the identifier is valid, assigning a range of port numbers to the IP telephone based on the identifier, wherein the IP telephone is operable to use at least a subset of the range of port numbers to send or receive IP communications.

2. (Original) The method of claim 1, wherein said range of port numbers comprises ports which are not reserved for use by other IP protocols.

3. (Original) The method of claim 1, further comprising:
mediating IP communications between the IP telephone and an IP device, wherein the IP telephone uses at least a subset of the range of port numbers to send or receive said IP communications.

4. (Original) The method of claim 3, wherein said mediating the IP communications comprises:
receiving a data packet from the IP telephone,
performing a network address persistent port translation (NAPPT) on the data packet; and
sending the data packet to the IP device.

5. (Original) The method of claim 4,
wherein the data packet comprises a private source IP address, a source port number, and destination information associated with the IP device,

wherein the private source IP address comprises a private IP address of the IP telephone, and wherein the source port number comprises a port number in the assigned range of port numbers; and

wherein said performing a network address persistent port translation (NAPPT) on the data packet comprises changing the private source IP address to a public source IP address while leaving the source port number unchanged, and wherein the public source IP address and the source port number may be used to uniquely identify the IP telephone.

6. (Original) The method of claim 3, wherein said mediating the IP communications comprises:

receiving a data packet from the IP device;

performing a network address persistent port translation (NAPPT) on the data packet; and

sending the data packet to the IP telephone.

7. (Original) The method of claim 6,

wherein the data packet comprises a public destination IP address, a destination port number; and source information associated with the IP device, wherein the destination port number comprises a port number in the assigned range of port numbers, and wherein the public destination IP address and the destination port number may be used to uniquely identify the IP telephone; and

wherein said performing a network address persistent port translation (NAPPT) on the data packet comprises using the public destination IP address and the destination port number to uniquely identify the IP telephone, and changing the public destination IP address to a private destination IP address while leaving the destination port number unchanged, wherein the private IP address comprises an IP address of the IP telephone.

8. (Original) The method of claim 1, wherein the identifier comprises a vendor class identifier.

9. (Cancelled)

10. (Original) The method of claim 1, wherein said identifier is comprised in a DHCP discover message, the method further comprising:

issuing a DHCP offer to the IP telephone if the identifier is determined to be valid, wherein the DHCP offer comprises DHCP lease information based on the validated identifier;

the IP telephone issuing a DHCP request in response to the issued DHCP offer;

storing the DHCP lease information in response to the issued DHCP request;

the IP telephone storing the DHCP lease information; and

the IP telephone enabling DHCP settings comprised in the DHCP lease information.

11. (Original) The method of claim 10, wherein said DHCP lease information includes the range of port numbers and information indicating operational software for the IP telephone, the method further comprising:

the IP telephone executing the indicated operational software to enable said IP communications.

12. (Original) The method of claim 10, wherein said DHCP lease information includes the range of port numbers and information indicating operational software for the IP telephone, the method further comprising:

the IP telephone issuing a request for the operational software;

providing the operational software to the IP telephone in response to the issued request; and

the IP telephone executing the provided operational software to enable said IP communications.

13. (Original) The method of claim 12, wherein said issuing the request for the operational software comprises issuing a read request to a file transfer server, wherein said file transfer server performs said providing the operational software to the IP telephone.

14. (Original) The method of claim 13, wherein the file transfer server comprises a TFTP (Trivial File Transfer Protocol) server.

15. (Original) The method of claim 1, wherein the range of port numbers comprises one or more port numbers.

16. (Previously Presented) A system for performing IP telephony, comprising:

a network;

an IP telephone;

a Service Gateway, wherein the Service Gateway is operable to couple to the IP telephone through the network;

wherein the IP telephone is operable to send an identifier to the Service Gateway;

wherein the Service Gateway is operable to:

receive an identifier from the IP telephone;

determine if a MAC ID for the IP telephone is valid;

if the MAC ID is determined to be valid, determine if the identifier is valid; and

if the identifier is valid, assign a range of port numbers to the IP telephone based on the identifier;

wherein the IP telephone is operable to use at least a subset of the range of port numbers to send or receive IP communications.

17. (Original) The system of claim 16, wherein said range of port numbers comprises ports which are not reserved for use by other IP protocols.

18. (Original) The system of claim 16, wherein the Service Gateway is further operable to mediate IP communications between the IP telephone and an IP device.

19. (Original) The system of claim 18, wherein, in mediating the IP communications the Service Gateway is operable to:

receive a data packet from the IP telephone,

perform a network address persistent port translation (NAPPT) on the data packet; and

send the data packet to the IP device.

20. (Original) The system of claim 19,

wherein the data packet comprises a private source IP address, a source port number, and destination information associated with the IP device, wherein the private source IP address comprises a private IP address of the IP telephone, and wherein the source port number comprises a port number in the assigned range of port numbers; and

wherein said performing a network address persistent port translation (NAPPT) on the data packet comprises changing the private source IP address to a public source IP address while leaving the source port number unchanged, and wherein the public source IP address and the source port number may be used to uniquely identify the IP telephone.

21. (Original) The system of claim 18, wherein, in mediating the IP communications the Service Gateway is operable to:

receive a data packet from the IP device;

perform a network address persistent port translation (NAPPT) on the data packet; and

send the data packet to the IP telephone.

22. (Original) The system of claim 21,

wherein the data packet comprises a public destination IP address, a destination port number; and source information associated with the IP device, wherein the destination port number comprises a port number in the assigned range of port numbers, and wherein the public destination IP address and the destination port number may be used to uniquely identify the IP telephone; and

wherein said performing a network address persistent port translation (NAPPT) on the data packet comprises using the public destination IP address and the destination port number to uniquely identify the IP telephone, and changing the public destination IP address to a private destination IP address while leaving the destination port number unchanged, wherein the private IP address comprises an IP address of the IP telephone.

23. (Original) The system of claim 16, wherein the identifier comprises a vendor class identifier.

24. (Cancelled)

25. (Original) The system of claim 16,

wherein said identifier is comprised in a DHCP discover message, wherein the Service Gateway is further operable to:

issue a DHCP offer to the IP telephone if the identifier is determined to be valid, wherein the DHCP offer comprises DHCP lease information based on the validated identifier;

wherein the IP telephone is further operable to:

issue a DHCP request in response to the issued DHCP offer;

store the DHCP lease information; and

enable DHCP settings comprised in the DHCP lease information; and

wherein the Service Gateway is further operable to:

store the DHCP lease information in response to the issued DHCP request.

26. (Original) The system of claim 25, wherein said DHCP lease information includes the range of port numbers and information indicating operational software for the IP telephone, wherein the IP telephone is further operable to:

execute the indicated operational software to enable said IP communications.

27. (Original) The system of claim 25, wherein said DHCP lease information includes the range of port numbers and information indicating operational software for the IP telephone,

wherein the IP telephone is further operable to:

issue a request for the operational software;

wherein the Service Gateway is further operable to:

provide the operational software to the IP telephone in response to the issued request; and

wherein the IP telephone is further operable to:

execute the provided operational software to enable said IP communications.

28. (Original) The system of claim 27, wherein, in issuing the request for the operational software, the IP telephone is operable to issue a read request to a file transfer server, wherein said file transfer server is operable to provide the operational software to the IP telephone.

29. (Original) The system of claim 28, wherein the file transfer server comprises a TFTP (Trivial File Transfer Protocol) server.

30. (Original) The system of claim 16, wherein the range of port numbers comprises one or more port numbers.

31. (Previously Presented) A memory medium, wherein the memory medium stores program instructions which are executable to perform:

receiving an identifier from the IP telephone;

determining if a MAC ID for the IP telephone is valid;

if the MAC ID is determined to be valid, determining if the identifier is valid; and

if the identifier is valid, assigning a range of port numbers to the IP telephone based on the identifier, wherein the IP telephone is operable to use at least a subset of the range of port numbers to send or receive IP communications.

32. (Original) The memory medium of claim 31, wherein said range of port numbers comprises ports which are not reserved for use by other IP protocols.

33. (Original) The memory medium of claim 31, wherein the program instructions are further executable to perform:

mediating IP communications between the IP telephone and an IP device, wherein the IP telephone uses at least a subset of the range of port numbers to send or receive said IP communications.

34. (Original) The memory medium of claim 33, wherein said mediating the IP communications comprises:

receiving a data packet from the IP telephone,

performing a network address persistent port translation (NAPPT) on the data packet; and

sending the data packet to the IP device.

35. (Original) The memory medium of claim 34,

wherein the data packet comprises a private source IP address, a source port number, and destination information associated with the IP device, wherein the private source IP address comprises a private IP address of the IP telephone, and wherein the source port number comprises a port number in the assigned range of port numbers; and

wherein said performing a network address persistent port translation (NAPPT) on the data packet comprises changing the private source IP address to a

public source IP address while leaving the source port number unchanged, and wherein the public source IP address and the source port number may be used to uniquely identify the IP telephone.

36. (Original) The memory medium of claim 33, wherein said mediating the IP communications comprises:

receiving a data packet from the IP device;

performing a network address persistent port translation (NAPPT) on the data packet; and

sending the data packet to the IP telephone.

37. (Original) The memory medium of claim 36,

wherein the data packet comprises a public destination IP address, a destination port number; and source information associated with the IP device, wherein the destination port number comprises a port number in the assigned range of port numbers, and wherein the public destination IP address and the destination port number may be used to uniquely identify the IP telephone; and

wherein said performing a network address persistent port translation (NAPPT) on the data packet comprises using the public destination IP address and the destination port number to uniquely identify the IP telephone, and changing the public destination IP address to a private destination IP address while leaving the destination port number unchanged, wherein the private IP address comprises an IP address of the IP telephone.

38. (Original) The memory medium of claim 31, wherein the identifier comprises a vendor class identifier.

39. (Cancelled).

40. (Original) The memory medium of claim 31, wherein said identifier is comprised in a DHCP discover message, wherein the program instructions are further executable to perform:

issuing a DHCP offer to the IP telephone if the identifier is determined to be valid, wherein the DHCP offer comprises DHCP lease information based on the validated identifier;

receiving a DHCP request from the IP telephone in response to the issued DHCP offer; and

storing the DHCP lease information in response to the issued DHCP request;

wherein said program instructions comprise IP telephone program instructions which are executable to:

store the DHCP lease information; and

enable DHCP settings comprised in the DHCP lease information.

41. (Original) The memory medium of claim 40, wherein said DHCP lease information includes the range of port numbers and information indicating operational software for the IP telephone, wherein the indicated operational software is executable by the IP telephone to enable said IP communications.

42. (Original) The memory medium of claim 40, wherein said DHCP lease information includes the range of port numbers and information indicating operational software for the IP telephone, wherein the program instructions are further executable to perform:

receiving a request for the operational software from the IP telephone;

providing the operational software to the IP telephone in response to the issued request; and

wherein the provided operational software is executable by the IP telephone to enable said IP communications.

43. (Original) The memory medium of claim 42,

wherein the IP telephone program instructions are executable to issue a read request to a file transfer server;

wherein said program instructions further comprise file transfer server program instructions executable to perform said providing the operational software to the IP telephone.

44. (Original) The memory medium of claim 43, wherein the file transfer server comprises a TFTP (Trivial File Transfer Protocol) server.

45. (Original) The memory medium of claim 31, wherein the range of port numbers comprises one or more port numbers.

46. (Previously Presented) A service gateway for use in an IP telephony network, wherein the service gateway is configured to:

couple one or more IP telephones to the network;

receive an identifier from an IP telephone;

determine if a MAC ID for the IP telephone is valid;

if the MAC ID is determined to be valid, determine if the identifier is valid; and

if the identifier is valid, assign a range of port numbers to the IP telephone based on the identifier;

wherein at least a subset of the range of port numbers are usable by the IP telephone to send or receive IP communications.

47. (Previously Presented) The service gateway of claim 46, wherein said range of port numbers comprises ports which are not reserved for use by other IP protocols.

48. (Previously Presented) The service gateway of claim 46, wherein the service gateway is further configured to mediate IP communications between the IP telephone and an IP device.

49. (Previously Presented) The service gateway of claim 48, wherein, in mediating the IP communications the service gateway is further configured to:

receive a data packet from the IP telephone,

perform a network address persistent port translation (NAPPT) on the data packet; and

send the data packet to the IP device.

50. (Previously Presented) The service gateway of claim 49,

wherein the data packet comprises a private source IP address, a source port number, and destination information associated with the IP device, wherein the private source IP address comprises a private IP address of the IP telephone, and wherein the source port number comprises a port number in the assigned range of port numbers; and

wherein said performing a network address persistent port translation (NAPPT) on the data packet comprises changing the private source IP address to a public source IP address while leaving the source port number unchanged, and wherein the public source IP address and the source port number may be used to uniquely identify the IP telephone.

51. (Previously Presented) The service gateway of claim 48, wherein, in mediating the IP communications, the service gateway is further configured to:

receive a data packet from the IP device;

perform a network address persistent port translation (NAPPT) on the data packet; and

send the data packet to the IP telephone.

52. (Previously Presented) The service gateway of claim 51,

wherein the data packet comprises a public destination IP address, a destination port number; and source information associated with the IP device, wherein the destination port number comprises a port number in the assigned range of port numbers, and wherein the public destination IP address and the destination port number may be used to uniquely identify the IP telephone; and

wherein said performing a network address persistent port translation (NAPPT) on the data packet comprises using the public destination IP address and the destination port number to uniquely identify the IP telephone, and changing the public destination IP address to a private destination IP address while leaving the destination port number unchanged, wherein the private IP address comprises an IP address of the IP telephone.

53. (Previously Presented) The service gateway of claim 46, wherein the identifier comprises a vendor class identifier.

54. (Previously Presented) The service gateway of claim 46,

wherein said identifier is comprised in a DHCP discover message, wherein the service gateway is further configured to:

issue a DHCP offer to the IP telephone if the identifier is determined to be valid, wherein the DHCP offer comprises DHCP lease information based on the validated identifier;

wherein the IP telephone is further operable to:

issue a DHCP request in response to the issued DHCP offer;

store the DHCP lease information; and

enable DHCP settings comprised in the DHCP lease information; and

wherein the service gateway is further configured to:

store the DHCP lease information in response to the issued DHCP request.

55. (Previously Presented) The service gateway of claim 54, wherein said DHCP lease information includes the range of port numbers and information indicating operational software for the IP telephone, wherein the IP telephone is further operable to:

execute the indicated operational software to enable said IP communications.

56. (Previously Presented) The service gateway of claim 54, wherein said DHCP lease information includes the range of port numbers and information indicating operational software for the IP telephone,

wherein the IP telephone is further operable to issue a request for the operational software;

wherein the service gateway is further operable to provide the operational software to the IP telephone in response to the issued request; and

wherein the IP telephone is further operable to execute the provided operational software to enable said IP communications.

57. (Previously Presented) The service gateway of claim 56, wherein, in issuing the request for the operational software, the IP telephone is operable to issue a read request to a file transfer server, wherein said file transfer server is operable to provide the operational software to the IP telephone.

58. (Previously Presented) The service gateway of claim 57, wherein the file transfer server comprises a TFTP (Trivial File Transfer Protocol) server.

59. (Previously Presented) The service gateway of claim 46, wherein the range of port numbers comprises one or more port numbers.

60. (Previously Presented) A system for hosted voice over internet protocol communications, the system comprising:

an internet protocol device (IPD) configured to convey a first data packet with a first private IP address; and

a service gateway (SG);

wherein the SG is configured to:

receive the first data packet with the first private IP address; and

perform network address translation (NAT) on the first data packet with a second private IP address, the second private IP address being assigned by a service provider.

61. (Previously Presented) The system of claim 60, wherein the SG is further configured to:

encapsulate the translated first data packet to form a first encapsulated data packet, the first encapsulated data packet having a first public IP address as a destination address and a second public IP address as a source address; and

convey the first encapsulated data packet via a tunnel.

62. (Previously Presented) The system of claim 61, further comprising a virtual private network concentrator (VPNC) coupled to the SG via a network, wherein the VPNC is configured to:

receive the first encapsulated data packet via the tunnel;

un-encapsulate the first encapsulated data packet to recover the first data packet including the second private IP address; and

convey the first data packet to a destination.

63. (Previously Presented) The system of claim 62, wherein a second data packet destined for the IPD is conveyed to the second private IP address, and wherein the VPNC is configured to:

receive the second data packet routed using the second private IP address;

encapsulate the received second data packet to form a second encapsulated data packet with a destination IP address comprising the second public IP address; and

convey the second encapsulated data packet via a tunnel using the second public IP address as a destination IP address.

64. (Previously Presented) The system of claim 63, wherein the SG is configured to:

receive the second encapsulated data packet;

un-encapsulate the second encapsulated data packet to recover the second data packet, the second data packet having the second public IP address as a destination IP address;

perform network address translation on the second data packet; and

convey the second data packet to the IPD using the first private IP address as a destination address.

65. (Previously Presented) The system of claim 61, wherein the second private IP address of the service gateway is assigned by a service provider.

66. (Previously Presented) The system of claim 61, wherein the SG is configured to only encapsulate packets conveyed by the IPD that are signaling packets.

67. (Previously Presented) The system of claim 61,

wherein the first data packet comprises the first private IP address as a source IP address and a source port number; and

wherein in performing said network address translation, the SG is configured to change the first private IP address to the second private IP address while leaving the source port number unchanged, wherein the second private IP address and the source port number may be used to uniquely identify the IPD.

68. (Previously Presented) A method for hosting voice over internet protocol communications, the method comprising:

receiving a first data packet with a private IP address at a service gateway (SG), the first data packet being conveyed with the private IP address from an internet protocol device (IPD); and

performing network address translation (NAT) on the first data packet with a second private IP address.

69. (Previously Presented) The method of claim 68, further comprising:

encapsulating the translated first data packet to form a first encapsulated data packet, the first encapsulated data packet having a first public IP address as a destination address and a second public IP address as a source address; and

conveying the first encapsulated data packet from the SG via a tunnel.

70. (Previously Presented) The method of claim 69, further comprising:

receiving the first encapsulated data packet via the tunnel at a virtual private network concentrator (VPNC);

un-encapsulating the first encapsulated data packet to recover the first data packet including the second private IP address; and

conveying the first data packet to a destination.

71. (Previously Presented) The method of claim 70, wherein a second data packet destined for the IPD is conveyed to the second private IP address, and wherein the method further comprises:

routing the second data packet to the VPNC using the second private IP address;

receiving the second data packet at the VPNC;

encapsulating the received second data packet to form a second encapsulated data packet with a destination IP address comprising the second public IP address; and

conveying the second encapsulated data packet via a tunnel using the second public IP address as a destination IP address.

72. (Previously Presented) The method of claim 71, further comprising:

receiving the second encapsulated data packet;

un-encapsulating the second encapsulated data packet to recover the second data packet, the second data packet having the second public IP address as a destination IP address;

performing network address translation on the second data packet; and

conveying the second data packet to the IPD using the first private IP address as a destination address.

73. (Previously Presented) The method of claim 69, wherein the second private IP address of the service gateway is assigned by a service provider.

74. (Previously Presented) The method of claim 69, further comprising only encapsulating signaling packets conveyed by the IPD.

75. (Previously Presented) The method of claim 69,

wherein the first data packet comprises the first private IP address as a source IP address and a source port number; and

wherein performing said network address translation comprises changing the first private IP address to the second private IP address while leaving the source port number unchanged, wherein the second private IP address and the source port number may be used to uniquely identify the IPD.

76. (Previously Presented) One or more computer readable storage media, said media comprising program instructions for hosting voice over internet protocol communications, wherein the program instructions are executable to:

receive a first data packet with a private IP address at a service gateway (SG), the first data packet being conveyed with the private IP address from an internet protocol device (IPD);

perform network address translation (NAT) on the first data packet with a second private IP address.

77. (Previously Presented) The storage media of claim 76, wherein the program instructions are further executable to:

encapsulate the translated first data packet to form a first encapsulated data packet, the first encapsulated data packet having a first public IP address as a destination address and a second public IP address as a source address; and

convey the first encapsulated data packet from the SG via a tunnel.

78. (Previously Presented) The storage media of claim 77, wherein the program instructions are further executable to:

receive the first encapsulated data packet via the tunnel at a virtual private network concentrator (VPNC);

un-encapsulate the first encapsulated data packet to recover the first data packet including the second private IP address; and

convey the first data packet to a destination.

79. (Previously Presented) The storage media of claim 78, wherein a second data packet destined for the IPD is conveyed to the first public IP address, and wherein the program instructions are further executable to:

route the second data packet to the VPNC using the second private IP address;

receive the second data packet at the VPNC;

encapsulate the received second data packet to form a second encapsulated data packet with a destination IP address comprising the second public IP address; and

convey the second encapsulated data packet via a tunnel using the second public IP address as a destination IP address.

80. (Previously Presented) The storage media of claim 79, wherein the program instructions are further executable to:

receive the second encapsulated data packet;

un-encapsulate the second encapsulated data packet to recover the second data packet, the second data packet having the second public IP address as a destination IP address;

perform network address translation on the second data packet; and

convey the second data packet to the IPD using the first private IP address as a destination address.

81. (Previously Presented) A service gateway for use in a voice over internet protocol communications system, the service gateway comprising:

a first interface configured to receive a first data packet with a first private IP address from an internet protocol device (IPD); and

a second interface configured to communicate via a tunnel;

wherein the service gateway is configured to perform network address translation on the first data packet with a second private IP address.

82. (Previously Presented) The service gateway of claim 81, wherein the service gateway is further configured to:

encapsulate the translated first data packet to form a first encapsulated data packet, the first encapsulated data packet having a destination address comprising a first public IP address; and

convey the first encapsulated data packet via a tunnel using a second public IP address as a source IP address.

83. (Previously Presented) The service gateway of claim 82, wherein the first data packet comprises the first private IP address as a source IP address and a source port number; and wherein in performing said network address translation, the service gateway is configured to change the first private IP address to the second private IP address while leaving the source port number unchanged, wherein the second private IP address and the source port number may be used to uniquely identify the IPD.

84. (Previously Presented) A system for hosted voice over internet protocol communications, the system comprising:

an internet protocol device (IPD) configured to convey a first data packet with a private IP address; and

a service gateway (SG);

wherein the SG is configured to:

receive the first data packet with the private IP address; and

perform network address translation (NAT) on the first data packet with a first public IP address.

85. (Previously Presented) The system of claim 84, wherein the SG is further configured to:

encapsulate the translated first data packet to form a first encapsulated data packet, the first encapsulated data packet having a destination address comprising a second public IP address different from the first public IP address; and

convey the first encapsulated data packet via a tunnel using the second public IP address as a source IP address.

86. (Previously Presented) The system of claim 85, further comprising a virtual private network concentrator (VPNC) coupled to the SG via a network, wherein the VPNC is configured to:

receive the first encapsulated data packet via the tunnel;

un-encapsulate the first encapsulated data packet to recover the first data packet; and

convey the first data packet to a destination using the first public IP address.

87. (Previously Presented) The system of claim 86, wherein a second data packet destined for the IPD is conveyed to the first public IP address, and wherein the VPNC is configured to:

receive the second data packet routed using the first public IP address;

encapsulate the received second data packet to form a second encapsulated data packet with a destination IP address comprising the second public IP address; and

convey the second encapsulated data packet via a tunnel using the second public IP address as a destination IP address.

88. (Previously Presented) The system of claim 87, wherein the SG is configured to:

receive the second encapsulated data packet;

un-encapsulate the second encapsulated data packet to recover the second data packet, the second data packet having the first public IP address as a destination IP address;

perform network address translation on the second data packet with the first public IP address; and

convey the second data packet to the IPD using the private IP address as a destination address.

89. (Previously Presented) The system of claim 85, wherein the first public IP address is assigned by a voice over internet protocol provider, and the second public IP address is assigned by a customer's internet service provider.

90. (Previously Presented) The system of claim 85, wherein the SG is configured to only encapsulate packets conveyed by the IPD that are signaling packets.

91. (Previously Presented) The system of claim 85,

wherein the first data packet comprises the private IP address as a source IP address and a source port number; and

wherein in performing said network address translation, the SG is configured to change the private IP address to the first public IP address while leaving the source port number unchanged, wherein the first public IP address and the source port number may be used to uniquely identify the IPD.

92. (Previously Presented) A method for hosting voice over internet protocol communications, the method comprising:

receiving a first data packet with a private IP address at a service gateway (SG), the first data packet being conveyed with the private IP address from an internet protocol device (IPD); and

performing network address translation (NAT) on the first data packet with a first public IP address.

93. (Previously Presented) The method of claim 92, further comprising:

encapsulating the translated first data packet to form a first encapsulated data packet, the first encapsulated data packet having a destination address comprising a second public IP address different from the first public IP address; and

conveying the first encapsulated data packet from the SG via a tunnel using the second public IP address as a source IP address.

94. (Previously Presented) The method of claim 93, further comprising:

receiving the first encapsulated data packet via the tunnel at a virtual private network concentrator (VPNC);

un-encapsulating the first encapsulated data packet to recover the first data packet; and

conveying the first data packet from the VPNC to a destination using the first public IP address.

95. (Previously Presented) The method of claim 94, wherein a second data packet destined for the IPD is conveyed to the first public IP address, and wherein the method further comprises:

routing the second data packet to the VPNC using the first public IP address;

receiving the second data packet at the VPNC;

encapsulating the received second data packet to form a second encapsulated data packet with a destination IP address comprising the second public IP address; and

conveying the second encapsulated data packet via a tunnel using the second public IP address as a destination IP address.

96. (Previously Presented) The method of claim 95, further comprising:

receiving the second encapsulated data packet at the SG;

un-encapsulating the second encapsulated data packet to recover the second data packet, the second data packet having the first public IP address as a destination IP address;

performing network address translation on the second data packet with the first public IP address; and

conveying the second data packet to the IPD using the private IP address as a destination address.

97. (Previously Presented) The method of claim 93, wherein the first public IP address is assigned by a voice over internet protocol provider, and the second public IP address is assigned by a customer's internet service provider.

98. (Previously Presented) The method of claim 93, further comprising only encapsulating signaling packets conveyed by the IPD.

99. (Previously Presented) The method of claim 93,

wherein the first data packet comprises the private IP address as a source IP address and a source port number; and

wherein performing said network address translation comprises changing the private IP address to the first public IP address while leaving the source port number unchanged, wherein the first public IP address and the source port number may be used to uniquely identify the IPD.

100. (Previously Presented) One or more computer readable storage media, said media comprising program instructions for hosting voice over internet protocol communications, wherein the program instructions are executable to:

receive a first data packet with a private IP address at a service gateway (SG), the first data packet being conveyed with the private IP address from an internet protocol device (IPD); and

perform network address translation (NAT) on the first data packet with a first public IP address.

101. (Previously Presented) The storage media of claim 100, wherein the program instructions are further executable to:

encapsulate the translated first data packet to form a first encapsulated data packet, the first encapsulated data packet having a destination address comprising a second public IP address different from the first public IP address; and

convey the first encapsulated data packet from the SG via a tunnel using the second public IP address as a source IP address.

102. (Previously Presented) The storage media of claim 101, wherein the program instructions are further executable to:

receive the first encapsulated data packet via the tunnel at a virtual private network concentrator (VPNC);

un-encapsulate the first encapsulated data packet to recover the first data packet; and

convey the first data packet from the VPNC to a destination using the first public IP address.

103. (Previously Presented) The storage media of claim 102, wherein a second data packet destined for the IPD is conveyed to the first public IP address, and wherein the program instructions are further executable to:

route the second data packet to the VPNC using the first public IP address;

receive the second data packet at the VPNC;

encapsulate the received second data packet to form a second encapsulated data packet with a destination IP address comprising the second public IP address; and

convey the second encapsulated data packet via a tunnel using the second public IP address as a destination IP address.

104. (Previously Presented) The storage media of claim 103, wherein the program instructions are further executable to:

receive the second encapsulated data packet at the SG;

un-encapsulate the second encapsulated data packet to recover the second data packet, the second data packet having the first public IP address as a destination IP address;

perform network address translation on the second data packet with the first public IP address; and

convey the second data packet to the IPD using the private IP address as a destination address.

105. (Previously Presented) A service gateway for use in a voice over internet protocol communications system, the service gateway comprising:

a first interface configured to receive a first data packet with a private IP address from an internet protocol device (IPD); and

a second interface configured to communicate via a tunnel;

wherein the service gateway is configured to:

perform network address translation (NAT) on the first data packet with a first public IP address.

106. (Previously Presented) The service gateway of claim 105, wherein the service gateway is further configured to:

encapsulate the translated first data packet to form a first encapsulated data packet, the first encapsulated data packet having a destination address comprising a second public IP address different from the first public IP address; and

convey the first encapsulated data packet via a tunnel using the second public IP address as a source IP address.

107. (Previously Presented) The service gateway of claim 106, wherein the first data packet comprises the private IP address as a source IP address and a source port number; and

wherein in performing said network address translation, the service gateway is configured to change the private IP address to the first public IP address while leaving the source port number unchanged, wherein the first public IP address and the source port number may be used to uniquely identify the IPD.